Space Weather Forecast

Issued on Monday 14 October 2024 at 13:02 Local

This forecast provides a four-day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: Chance G1 Minor Storm day 2 (15 Oct) from glancing CME arrival or onset of faster solar winds from a coronal hole. Chance of isolated Moderate flares.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Moderate activity with a Moderate-class flare observed at 14/0017UTC from a large region near the northwest limb. This region is the largest of the eight regions on the disc, and has shown some apparent simplification in the period, although this could be due to increasing viewing angle. Two linked regions near south centre disc remain relatively inactive, but do have the potential for some flare activity over the next few days. The rest of the sunspots are smaller and relatively magnetically simple.

The strongest of these from the largest of the eight regions on the disc. This has shown some apparent simplification in the period, although this could be due to increasing viewing angle. The other regions remain stable and relatively simple, with perhaps the main flare risk from the close proximity pair in the south-centre disc, however these have both seen their intermediate spots fade.

No Earth-directed coronal mass ejections (CMEs) have been observed.

Solar Wind / Geomagnetic Activity: Solar winds were initially slightly elevated but fell to background levels by the end of the period. Interplanetary magnetic field was weak throughout. The north-south component varied weakly throughout. Geomagnetic activity was Quiet (Kp0-2).

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) were at background, with no Solar Radiation Storms occurring.

Four-Day Space Weather Forecast Summary

Solar Activity: Low to Moderate activity is expected with a chance of isolated Moderate-class flares and a slight chance of Strong-class flares.

Solar Wind / Geomagnetic Activity: There is a chance of a glancing impact from the CME early day 2 (15 Oct). There are no other Earth-directed CMEs in the forecast. Slightly elevated winds are expected to continue gradually easing to background, however there is a slight chance of faster solar winds arriving day 2 (15 Oct), although this is low confidence. Mainly Quiet geomagnetic

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activity is forecast with Unsettled intervals. Any coronal hole or CME enhancement brings the chance of Active to G1 Minor Storm intervals.

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) is expected to remain at background, with no Solar Radiation Storms occurring. However, there remains a slight chance of further enhancements given the large sunspot region in the northwest, and the sunspots in the south-centre disc moving across the western hemisphere.

Geomagnetic Storms

Geomagnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	5	30	10	1
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X-Ray Flares

X-Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 (M Class)	No	60	60	50	50
Very Active	R3-R5 (X Class)	No	10	10	5	5

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Solar Radiation Storms (High Energy Protons)

Radiation Storms Probability (Exceedance)	Level ($cm^{-2}sr^{-1}s^{-1}$)	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	**≥ S1**	No	10	10	5	5
Very Active	**≥ S3 ***	No	1	1	1	1
* S3 ≥ 10 MeV ≥ 1000 pfu and/or 50 MeV ≥ 10pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)						

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